4.3 BIOLOGY

The information contained in this section is based on the *SR-22 West Orange County Connection (WOCC) Natural Environment Study (NES)* and the *NES Reduced Build Alternative Addendum* (December 2000), and the NES Reduced Build Alternative (Revised) Addendum (December 2002), all of which are available under separate cover at the Department and OCTA. The studies investigated the biological setting of the project area, assessed project impacts and proposed mitigation measures. This section focuses primarily on impacts and mitigation measures related to biology in the study area of the identified Preferred Alternative, the (Enhanced) Reduced Build Alternative.

As discussed in Section 2.2.1, the Reduced Build Alternative, as presented in the DEIR/EIS, has been modified and renamed the (Enhanced) Reduced Build Alternative. The (Enhanced) Reduced Build Alternative includes all of the Reduced Build Alternative's project features, as presented in the August 2001 DEIR/EIS, and two project components from the Full Build Alternative: one is the freeway mainline section of the SR-22/SR-55 direct HOV connector from the Full Build Alternative, without the freeway to freeway connecting structure, and two: an auxiliary lane from Glassell Street to Tustin Avenue in the eastbound direction. The extended portion of the Mainline is approximately 1.2 miles at the eastern terminus of the project limits, which was analyzed as part of the Full Build Alternative. The added feature to the (Enhanced) Reduced Build alternative extends the eastern terminus improvements in both directions from Glassell Street to approximately SR-55, resulting in the modification of the Reduced Build Alternative. The extension of the HOV mainline at the eastern terminus prompted additional analysis (i.e., invasive plant species) to address potential impacts to Santiago Creek and Santa Ana River. The refinement to the right-of-way and the modification to the Pearce Street pedestrian overcrossing would have no effects to biological resources.

4.3.1 VEGETATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive natural plant communities identified in local or regional plans, policies or regulations or by the CDFG or USFWS are present in the project study area. The Special Status Plant, Animals, and Natural Communities species list are included in Appendix I to this document.

I-405/605 HOV connector

As discussed in Section 2.2, the I-405/605 HOV connector alignment presented in the DEIR/EIS was proposed over three existing facilities: the I-405 freeway, the connector from eastbound SR-22 to northbound I-405, and the connector from southbound I-405 to northbound I-605. The peak elevation of the proposed connector occurred at approximately 29 meters high where the minimum vertical clearance is required over the existing southbound I-405 to northbound I-605 connector. During the public review period of the August 2001 DEIR/EIS, which included a 60-day public comment period and two Public Hearings, concerns from the Rossmoor residents arose regarding traffic noise, visual, air quality, and traffic issues. In an effort to address these concerns, several different design variations have been studied. Among them, one design solution significantly reduced the height of the HOV connector by shifting the previous alignment southerly such that the revised alignment runs parallel between the eastbound SR-22 and the southbound I-605 to southbound I-405 connectors at the same elevations. The peak elevation of this alignment occurs at approximately 22 meters high where the minimum vertical clearance is required over the eastbound SR-22 connector. The realignment of the I-405/605 HOV connector is in the existing right-of-way; there are no impacts anticipated from this structure to sensitive species. The proposed project will include the mitigation measures described in BIO-(E)RB-4.

Pearce Street Pedestrian Overcrossing

Refined engineering plans and the availability of more detailed design level surveys have identified that the Pearce Pedestrian overcrossing is in need of replacement since it would conflict

with the proposed widening of the SR-22/WOCC project. The original Preliminary Engineering plans for the SR-22/WOCC pedestrian overcrossing assumed it would be replacement in kind. The Pearce Street pedestrian overcrossing is located between the Fairview Street and Harbor Boulevard exits on SR-22, just east of Harbor Boulevard. The Pearce Street pedestrian overcrossing is an existing pedestrian overcrossing that is not compliant with the Americans with Disabilities Act (ADA). The replacement of the pedestrian overcrossing would have to comply ADA standards. ADA requires a minimum of 8.3% grade, and an eight-foot width for the walkway of the pedestrian overcrossing. The existing Pearce Street pedestrian overcrossing is approximately at a 15% grade and it is approximately seven feet wide. The refined engineering plans also allowed determination of the proximity of setback for possible landscaping and determination of preliminary noise barriers. The plans for the Pearce Street pedestrian overcrossing will be finalized at the design stage of the project. This pedestrian overcrossing is an urban area with mostly bare ground and few trees. Sensitive species are not within the area. The proposed project will include the mitigation measures described in BIO-(E)RB-4.

Most drainage facilities in the study area are entirely concrete-lined and do not support riparian vegetation. The following drainage facilities are unlined channels.

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the (Enhanced) Reduced Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. No impacts to riparian vegetation would occur. (See Section 4.4 for a discussion of potential erosion impacts to nearby wetlands.)

Santa Ana River. In the vicinity of the SR-22 crossing, the Santa Ana River has rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Minimal impacts to riparian vegetation are anticipated during construction under the (Enhanced) Reduced Build Alternative.

Santiago Creek. In the vicinity of the SR-22 crossing, Santiago Creek has rock- or concrete-lined banks with a rocky bottom supporting only ruderal and exotic vegetation. Minimal impacts to riparian vegetation are anticipated during construction under the (Enhanced) Reduced Build Alternative. Large native existing trees, including coast live oaks, are found within the project survey area and could be impacted due to ramp relocation activities. The culvert at Santiago Creek (the relocation area for the westbound ramp) may be impacted. This drainage channel, likely excavated on upland, is exempt from Section 404 regulation, but still subject to CDFG Section 1600 jurisdiction as it may be impacted due to ramp relocation activities.

Montecito Channel. In the vicinity of the SR-22 crossing, the Montecito Channel has a soft-bottom, exhibits disturbed conditions, and contains primarily ruderal species. There are no impacts anticipated to riparian vegetation or sensitive species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative includes no construction or other action and no impacts to vegetation would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to vegetation would occur.

3. FULL BUILD ALTERNATIVE

No sensitive natural plant communities identified in local or regional plans, policies or regulations or by the CDFG or USFWS are present in the project study area.

Most drainages in the study area are concrete lined and do not support riparian vegetation. Surveys by the Department, in June 2002, indicated several "v-ditches" (drainage ditches), constructed in upland near the existing bridges that may be jurisdictional under Section 1601, were identified as supporting emergent riparian wetland vegetation. The following drainages are unlined channels:

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the Full Build Alternative would be constructed within the existing state right-of-way and above the maximum flooding elevation. No impacts to riparian vegetation would occur.

Santa Ana River. In the vicinity of the SR-22 crossing, the Santa Ana River has rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Impacts to riparian vegetation are anticipated to be minimal under the Full Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. The creek has a gravel/sandy channel bed where it crosses SR-22 and SR-55 . Impacts to riparian vegetation in the creek related to the widening of the two crossings would be minimal and likely to require a Streambed Alteration Agreement from CDFG for proposed improvements that would affect the creek.

Thresholds of Significance for CEQA:

- Construction activities in the Santa Ana River and Santiago Creek may result in spread of invasive plant species.

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive natural plant communities have been identified in the local or regional plans, policies or regulations or by the CDFG or USFWS in the project study area.

Improvements under the (Enhanced) Reduced Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. Impacts to riparian vegetation would be less than significant for the Santa Ana River and Santiago Creek.

Santa Ana River. As the SR-22 crosses over the Santa Ana River, existing conditions include rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation. Impacts to riparian vegetation are anticipated to be less than significant under the Reduced Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. Impacts to riparian vegetation in the creek related to the (enhanced) reduced build alternative would be less than significant.

Montecito Channel. In the vicinity of the SR-22 crossing, the Montecito Channel has a soft-bottom and disturbed conditions containing primarily ruderal species. There are no impacts anticipated to riparian vegetation or sensitive species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to waters of the United States.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts to vegetation.

3. FULL BUILD ALTERNATIVE

No sensitive natural plant communities have been identified in local or regional plans, policies or regulations or by the CDFG or USFWS in the project study area.

Los Alamitos Channel. The Los Alamitos Channel is an intermittent stream that supports low-growing and emergent herbaceous wetland vegetation for most of its length. Improvements under the Full Build Alternative would be constructed within the existing State right-of-way and above the maximum flooding elevation. Impacts to riparian vegetation are anticipated to be less than significant.

Santa Ana River. As the SR-22 crosses over the Santa Ana River, rock- or concrete-lined banks with a sand bottom supporting only ruderal and exotic vegetation are present. Impacts to riparian vegetation would be less than significant under the Full Build Alternative.

Santiago Creek. The Santiago Creek is a highly disturbed, intermittent streambed supporting exotic vegetation as well as disturbed riparian vegetation, including California sycamore, willow, and coast live oak. The creek has a gravel/sandy channel bed where SR-22 and SR-55 cross it. Impacts to riparian vegetation in the creek related to the widening of the two crossings would be minimal and likely to require a 1601 Streambed Alteration Agreement from CDFG for proposed improvements that would affect the creek.

Montecito Channel. The Montecito Channel is an intermittent stream that supports primarily ruderal species and is channelized for portions of its length in proximity to the SR-22. There are no impacts anticipated to riparian vegetation or sensitive species.

4.3.2 WILDLIFE AND WILDLIFE DISPERSION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

The wildlife species within the project area of the (Enhanced) Reduced Build Alternative are well acclimated to an urban environment. Habitat generally removed would be limited to introduced landscaping (i.e., primarily exotic and ruderal species with a small amount of disturbed riparian vegetation). Minimal impacts to wildlife are anticipated from the removal of habitat.

Wildlife Dispersion. The (Enhanced) Reduced Build Alternative is proposed within an existing transportation corridor. Improvements to freeways within this corridor would not include structures that could act as barriers to wildlife movement. The minimal movement of wildlife within these drainages includes mostly local common species. However, migratory birds, including swifts and swallows, and mature bats may use existing landscaping and native trees as well as bridge structures for nest sites. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed for occupied nests by a biologist. Discovery of occupied nests will result in a delay of work until the nests are unoccupied.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts to wildlife and wildlife dispersion would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts to wildlife and wildlife dispersion would occur.

3. FULL BUILD ALTERNATIVE

The wildlife species within the path of the Full Build Alternative are well acclimated to an urban environment. Generally, habitat removed would be limited to introduced landscaping. Minimal impacts to wildlife are anticipated from the removal of habitat.

Maternity colonies of big brown bats and Mexican free-tailed bats are reported to occur at the SR-55 and SR-22 bridge crossing over Santiago Creek. The bridges are concrete box structures, with four to five spans, and internal cavities of variable lengths. At least one structure indicates the presence of a restrained hinge and closure pours between adjacent structures. The hinges, closure crevices, internal cavities, and rock slope protection are the most probable location for bat species to occur on this type of structure. A pre-construction survey will be performed by a biologist at the Santiago Creek Bridges for the presence of bats. Disturbance and possible destruction of the bridge nooks used by bats are considered substantial impacts because maternity colonies of bats are rare. In addition, the bridges provide nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts, which would be affected by construction.

Wildlife Dispersion. The Full Build Alternative is in an existing transportation corridor. Improvements to freeways within this corridor would not include structures that would act as barriers to wildlife movement. Waterways within the project study area currently function only minimally as wildlife corridors due to their mostly channelized condition and the lack of adjacent open space. The limited movement of wildlife that occurs within these drainage areas includes mostly local common species. Migratory birds may use existing landscaping and native trees for nest sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests.

Thresholds of Significance for CEQA:

- Impacts to nesting swifts, swallows, bat maternity sites, and other migratory birds

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Habitat generally removed under the (Enhanced) Reduced Build Alternative would be limited to introduced landscaping, and impacts to wildlife resulting from its removal would be less than significant. (The Enhanced Reduced Build Alternative would include an alteration of the SR-22 bridge over Santiago Creek with a pre-construction survey required to determine any impacts to nesting birds or bats).

Wildlife Dispersion. The (Enhanced) Reduced Build Alternative is in an existing transportation corridor. The minimal movement of wildlife within these drainages includes mostly local common species, resulting in less than significant impacts. Removal of landscaping and trees should be accomplished before or after the nesting season since migratory birds, swifts, swallows and/or bats may use existing landscaping, native trees and bridge structures for nest sites. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests; if occupied nests are found, this may cause a delay of work until the nests are unoccupied.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts to wildlife and wildlife dispersion.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. The TSM/Expanded Bus Service Alternative would have no impacts to wildlife and wildlife dispersion.

3. FULL BUILD ALTERNATIVE

The wildlife species within the path of the Full Build Alternative are well acclimated to an urban environment. Generally, habitat removed would be limited to introduced landscaping. Impacts to wildlife resulting from the removal of this habitat would be less than significant.

Maternity colonies of big brown bats and Mexican free-tailed bats are reported to occur at the SR-55 and SR-22 bridge crossings over Santiago Creek. The bridges are concrete box structures, with four to five spans, and internal cavities of variable lengths. At least one structure indicates the presence of a restrained hinge and closure pours between adjacent structures. The hinges, closure crevices, internal cavities, and rock slope protection are the most probable location for bat species to occur on this type of structure. A pre-construction survey will be performed by a biologist at the Santiago Creek Bridges for the presence of bats. Disturbance and possible destruction of the bridge nooks used by bats are considered a substantial impact because maternity colonies of bats are rare. In addition, the bridges provide nesting habitat for migratory birds, such as cliff swallows, rough-winged swallows, and white-throated swifts, which would be affected by construction.

Wildlife Dispersion. The Full Build Alternative is in an existing transportation corridor. The minimal movement of wildlife within these drainage areas includes mostly common species, resulting in less than significant impacts. Migratory birds may use existing landscaping and native trees for nesting sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If removal must take place during the nesting season, the plants will be surveyed by a biologist for occupied nests.

4.3.3 SPECIES OF CONCERN

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Since the (Enhanced) Reduced Build Alternative study area exhibits a high level of human disturbance and supports isolated native plant species but no native plant communities, no sensitive plant or wildlife species are expected to occur in the vicinity of the study area. Some sensitive species may occasionally occur within the vicinity of the alternative, but these species would be visitors to the study area at most. No specific mitigation measures have been proposed for these possible occurrences based on surveys of the study area, which did not indicate the presence of any species of concern.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts to species of concern would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No substantial impacts to species of concern would occur. No sensitive plant or animal species are expected to occur within the study area.

3. FULL BUILD ALTERNATIVE

Since the Full Build Alternative study area supports isolated native plant species and because of the high level of human disturbance, no sensitive plant or animal species are expected to be affected by this alternative.

Thresholds of Significance for CEQA:

- Substantial impacts to species of concern

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

No sensitive plant and/or animal species of concern were identified during surveys of the study area. Therefore, this alternative is not expected to have an impact on sensitive plant or animal species.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts on species of concern.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. The TSM/Expanded Bus Service Alternative would have no impacts on species of concern.

3. FULL BUILD ALTERNATIVE

Since the Full Build Alternative study area supports isolated native plant species and exhibits a high level of human disturbance, no sensitive plant or animal species are expected to be affected by this alternative.

4.3.4 BIOLOGY-RELATED LAWS, REGULATIONS AND EXECUTIVE ORDERS

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). Migratory birds, their nests, and their eggs are protected under the Federal MBTA. This Alternative would remove or alter structures that may be used by migratory birds as nesting areas. All actions related to this Alternative are required to be conducted in accordance with the MBTA. Special permits from the USFWS may be required for the proposed actions in order to comply with the Act.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which may nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to any disturbance to nesting birds and/or bats during the nesting season. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would not include construction other than that which is addressed in other environmental documents; therefore, no additional impacts arising from other biology-related regulations would occur.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would not include any major capital improvements to SR-22. No impacts resulting from other biology-related regulations would occur.

3. FULL BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). Migratory birds, their nest, and their eggs are protected under the Federal MBTA. This Alternative would remove or alter structures that may be used by migratory birds as nesting areas. All actions related to this Alternative are required to be conducted in accordance with the MBTA. Special permits from the USFWS may be required for the proposed actions in order to comply with the Act.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which may nest under the Santiago Creek

bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to any disturbance to nesting birds and/or bats during the nesting season. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law.

Thresholds of Significance for CEQA:

- Substantial impacts to streambeds and associated habitats, and existing native trees

CEQA Findings:

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Executive Order, 13112, Invasive Species (EO 13112). EO 13112 states that Federal Agencies are not to authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States. All actions related to this Alternative are required to be conducted in accordance with EO 13112.

Migratory Bird Treaty Act (MBTA). The (Enhanced) Reduced Build Alternative would have impacts under this act because it includes removal and/or alteration of structures that may be used by migratory birds as nesting areas. However, the potential for removal of existing native trees within the project study area will be reviewed by a biologist prior to construction and the proper MBTA permits will be obtained, if necessary. This impact would be considered less than significant with proper coordination.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which potentially nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation. This impact would be considered less than significant with proper coordination.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to construction activities for disturbance to nesting birds and/or bats. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law. This impact would be considered less than significant with proper coordination.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

The No Build Alternative would have no impacts related to streambeds and associated habitats and existing native trees.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

The TSM/Expanded Bus Service Alternative would have no impacts related to streambeds and associated habitats, and existing native trees.

3. FULL BUILD ALTERNATIVE

Migratory Bird Treaty Act (MBTA). The (Enhanced) Reduced Build Alternative would have impacts under this act because it includes removal and/or alteration of structures that may be used by migratory birds as nesting areas. However, the potential for removal of existing native trees within the project study area will be reviewed by a biologist prior to construction and the proper MBTA permits will be obtained, if necessary. This impact would be considered less than significant with proper coordination.

California Fish and Game Code Sections 4150-4154. These sections of California law protect non-game mammals, including bats, which potentially nest under the Santiago Creek bridges. The proper coordination and necessary permits would be obtained to remedy the potential for a violation. This impact would be considered less than significant with proper coordination.

California Code of Regulations, Title 14, Natural Resources. This section of California law forbids the harassment of any game or non-game bird or animal. To avoid impacts to these resources, a biologist will survey the impacted site prior to construction activities for disturbance to nesting birds and/or bats. If nesting birds or bats are found during the survey, there would be coordination with the proper agencies to ensure compliance with this law. This impact would be considered less than significant with proper coordination.

4.3.5 MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Future acquisition of Section 401, 404, and 1600 permits required by resource agencies may require additional mitigation measures. In addition, mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-(E)RB-1. The project will comply with the provisions of Section 1601 of the California Fish and Game Code with respect to project impacts on streambeds and associated habitats. After design of the Preferred Alternative and prior to project construction, a determination of the extent of disturbance to drainages and streambeds in the study area will be made, and a Streambed Alteration Agreement will be obtained.

BIO-(E)RB-2. Large existing native trees will be avoided to the maximum extent feasible; where sufficient area is available, replacement trees of ecologically appropriate native species (to be determined by the biologist) will be replanted as near as possible to the tree that was removed. See Section 4.13 for mitigation related to the replacement of landscaping.

BIO-(E)RB-3. Prior to project construction in Santiago Creek, invasive weeds will be removed from the project area under the supervision of a botanist qualified in the identification of invasive species. Invasive weed removal will be conducted prior to seed set (as determined by monthly spring surveys by a qualified botanist) to minimize the spread of invasive weed seeds in the project area. If it is not possible to remove weeds prior to seed set, measures to minimize the release of invasive weed seeds during weed removal (e.g., manual weed removal while placing weeds in plastic bags) will be used. In addition, early in the spring following termination of construction activities in and adjacent to Santiago Creek and prior to seed set by invasive weed species (as determined by the monthly surveys), removal of invasive weeds will be conducted in and within 60 meters (200 feet) downstream of the construction zone to minimize the contribution of project construction to the spread of invasive weed species in Santiago Creek. If necessary for erosion-control, only weed-free haybales will be used. The removal of invasive species at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-(E)RB-4. Per Executive Order 13112 Invasive Species (February 1999), (1) Invasive weeds will be removed from the project area as described in BIO-(E)RB-3 for areas outside of Santiago Creek. (2) No noxious weeds will be used in the landscape plans of the proposed project. The California Department of Food and Agriculture (per FHWA interim guidance) will be consulted for a list of invasive species. (3) Additionally, where appropriate, construction equipment will be rinsed to prevent the movement of invasive plants.

BIO-(E)RB-5. In order to prevent impacts to nesting swifts, swallows and other migratory birds as protected under the MBTA, all work on the Santiago Creek bridges and removal of landscaping will be scheduled outside of the dates of 15th of February to 31st of August. During the August 2001 DEIR/EIS, the recommended nesting bird survey was proposed between the 1st of March through the 31st of August. Upon additional analysis and survey conducted, to ensure minimal impacts, the nesting bird survey will be initiated earlier. If this is not feasible, all birds' nests that would be destroyed by the project will be removed prior to February 1 of that year, before the swallow colony returns to the nesting site. Removal of swallow nests will be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed, such as netting or similar mechanism that keeps birds from building nests and that is approved by the biologist. Such exclusion efforts will be continued to keep the structure swallow-free until September or completion of construction.

BIO-(E)RB-6. Measures to minimize harm to bats will include a biologist reviewing the bridge design to determine possible loss of habitat for the bats. At that time, a biologist may determine the need for structural modifications or superficial attachments to avoid the loss of habitat.

A pre-construction survey will be performed by a biologist at the Santiago Creek bridge for the presence of bats. If bats are present, appropriate mitigation will be performed as determined by a qualified bat biologist. This may include exclusion, changing staging areas, access routes, and lighting. Each structure and surrounding area that may be affected by the project shall be surveyed by a qualified bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found, the bat biologist will identify the species and evaluate the colony to:

a) Verify that the following potential impacts would not occur:
   - Verify there would be minimal adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by CDFG or USFWS.
   - Verify there would be minimal adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service where such effects may be caused by alteration of a colony.
   - Verify there would be minimal interference with the movement of any native, resident, or migratory bat species, with any corridor used by resident or migratory bat species, or with the ability of any bat species to use nursery sites.
   - Verify the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a bat species, cause a bat population to drop below self-sustaining levels, threaten to eliminate a bat community, or reduce the number or restrict the range of a rare or endangered bat.
b) Develop appropriate and feasible species-specific mitigation measures to offset impacts.
c) Design effective and humane exclusion techniques that reflect seasonal and structural constraints.
d) Identify scientific value of the site for research and management.

If individuals or colonies are present during project activities and these activities can reasonably be expected to result in harm, then the animals will be excluded during the appropriate time of year. The use of humane methods will minimize the potential to adversely affect populations

through increased morbidity and mortality or reduced fecundity. Methods and techniques shall be prepared under the review of the bat biologist using information from above.

If there is potential for adverse effects on bat habitat, then cost-effective measures developed under the direction of a bat biologist will be implemented to reduce the effect on the colony and ecosystem to a negligible level. Measures may include:

a) Minor structural modifications within engineering parameters for cost, safety, and function
b) Minor superficial attachments within engineering parameters for cost, safety, and function
c) Measures to improve off-site colony roosts sufficient to offset impacts from colony loss
d) Measures to improve species management sufficient to offset impacts from colony loss

If exclusion and/or mitigation measures are implemented, then an appropriate monitoring protocol will be implemented in cooperation with the CDFG and USFWS to ensure exclusion and mitigation measures are effective and modified as necessary. Scientific information shall also be recovered by identification of associated roosts and habitat use.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None proposed.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None proposed.

3. FULL BUILD ALTERNATIVE

The Section 401, 404, and 1600 permits required by resource agencies may require additional mitigation measures. In addition, mitigation efforts at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-FB-1. The project will comply with the provisions of Section 1600 of the California Fish and Game Code with respect to project impacts on streambeds and associated habitats. After design of the Full Build Alternative and prior to project construction, a determination of the extent of disturbance to drainages/streambeds in the study area will be made and a Streambed Alteration Agreement will be obtained.

BIO-FB-2. Large existing native trees will be avoided to the maximum extent feasible. Where sufficient area is available, replacement trees of ecologically appropriate, native species (to be determined by the biologist) will be replanted as near as possible to the tree that was removed. See Section 4.13 for mitigation related to the replacement of landscaping.

BIO-FB-3. Prior to project construction in Santiago Creek, invasive weeds will be removed from the project area under the supervision of a botanist qualified in the identification of invasive species. Invasive weed removal will be conducted prior to seed set (as determined by monthly spring surveys by a qualified botanist) to minimize the spread of invasive weed seeds in the project area. If it is not possible to remove weeds prior to seed set, measures to minimize the release of invasive weed seeds during weed removal (e.g., manual weed removal while placing weeds in plastic bags) will be used. In addition, early in the spring following termination of construction activities in and adjacent to Santiago Creek and prior to seed set by invasive weed species (as determined by the monthly surveys), removal of invasive weeds will be conducted in and within 60 meters (200 feet) downstream of the construction zone to minimize the contribution of project construction to the spread of invasive weed species in Santiago Creek. If necessary for erosion-control, only weed-free

hay bales will be used. The removal of invasive species at Santiago Creek must be coordinated with other mitigation projects, including, but not limited to those by the City of Orange.

BIO-FB-4. Per Executive Order 13112 Invasive Species (February 1999): (1) Invasive weeds will be removed from the project area as described in BIO-FB-3 for areas outside of Santiago Creek. (2) No noxious weeds will be used in the landscape plans of the proposed project. The California Department of Food and Agriculture (per FHWA interim guidance) will be consulted for a list of invasive species. (3) Additionally, where appropriate, construction equipment will be rinsed to prevent the movement of invasive plants.

BIO-FB-5. In order to prevent impacts to nesting swifts, swallows and other migratory birds as protected under the MBTA, all work on the Santiago Creek bridges and removal of landscaping will be scheduled outside of the months of 15th of February to 31st of August. During the August 2001 DEIR/EIS, the recommended nesting bird survey was proposed between the 1st of March through the 31st of August. Upon additional analysis and survey conducted, to ensure minimal impacts, the nesting bird survey will be initiated earlier. If this is not feasible, all unoccupied birds' nests that would be removed by the Full Build Alternative will be removed after August 31 and prior to February 1 of that year, before the swallow colony or other migratory birds return to the nesting site. However, it should be noted that migratory birds may use existing landscaping and natives trees for nest sites, as well as bridge structures. Removal of landscaping and trees should be accomplished before or after the nesting season. If vegetation removal must take place during the nesting season, the vegetation will be surveyed for occupied nests. Removal of empty or unfinished swallow nests will be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed, such as netting or similar mechanism that keeps birds from building nests and that is approved by the biologist. Such exclusion efforts will be continued to keep the structure swallow-free until September or completion of construction. Before demolition, the structures will be inspected for occupied nests. If occupied nests are found, demolition activities will be rescheduled until nesting activities cease. Occupied nests can only be removed with a special permit from USFWS.

BIO-FB-6. Measures to minimize harm to bats will include a biologist reviewing the bridge design to determine possible loss of habitat for the bats. At that time, a biologist may determine the need for structural modifications or superficial attachments to avoid the loss of habitat.

A pre-construction survey will be performed by a biologist at the Santiago Creek Bridge for the presence of bats. If bats are present, appropriate mitigation will be performed as determined by a qualified bat biologist. This may include exclusion, changing staging areas, access routes, and lighting. Each structure and surrounding area that may be affected by the project shall be surveyed by a qualified bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found, the bat biologist will identify the species and evaluate the colony to:

a) Verify that the following potential impacts would not occur:
- Verify there would be minimal adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by CDFG or USFWS.
- Verify there would be minimal adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service where such effects may be caused by alteration of a colony.
- Verify there would be minimal interference with the movement of any native, resident, or migratory bat species, with any corridor used by resident or migratory bat species, or with the ability of any bat species to use nursery sites.

- Verify the project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a bat species, cause a bat population to drop below self-sustaining levels, threaten to eliminate a bat community, or reduce the number or restrict the range of a rare or endangered bat.

b) Develop appropriate and feasible species-specific mitigation measures to offset impacts.
c) Design effective and humane exclusion techniques that reflect seasonal and structural constraints.
d) Identify scientific value of the site for research and management.

If individuals or colonies may be present during project activities and these activities can reasonably be expected to result in harm, then the animals will be excluded during the appropriate time of year. Humane methods will be used to minimize the potential to adversely affect populations through increased morbidity and mortality or reduced fecundity. Methods and techniques shall be prepared under the review of the bat biologist using information from above.

If there is potential for adverse effects on bat habitat, then cost-effective measures developed under the direction of a bat biologist will be implemented to reduce the effect on the colony and ecosystem to a negligible level. Measures may include:

a) Minor structural modifications within engineering parameters for cost, safety, and function
b) Minor superficial attachments within engineering parameters for cost, safety, and function
c) Measures to improve off-site colony roosts sufficient to offset impacts from colony loss
d) Measures to improve species management sufficient to offset impacts from colony loss

If exclusion and/or mitigation measures are implemented, then an appropriate monitoring protocol will be implemented in cooperation with the CDFG to ensure exclusion and mitigation measures are effective and modified as necessary. Scientific information shall also be recovered by identification of associated roosts and habitat use.

4.3.6 RESIDUAL IMPACTS AFTER MITIGATION

A. PREFERRED ALTERNATIVE/(ENHANCED) REDUCED BUILD ALTERNATIVE

Impacts to biology can be reduced to minimal in most cases. For potential bat maternity sites, through mitigation proposed, most notably mitigation to exclude roosting (during construction) at the appropriate time of year, substantial impacts can be avoided. Mitigation includes approved monitoring and coordination with CDFG and USFWS. If it is determined that a potential substantial impact would occur, further coordination with the resources agencies would be required.

In addition, with the successful application of mitigation measures as proposed in Section 4.3.5, Mitigation, residual impacts are considered a less than substantial impact.

The project applicant is to coordinate with the CDFG, USFWS, USACOE, and CRWQCB prior to permit application to discuss current project features and proposed mitigation measures.

B. OTHER ALTERNATIVES

1. NO BUILD ALTERNATIVE

None.

2. TSM/EXPANDED BUS SERVICE ALTERNATIVE

None.

3. FULL BUILD ALTERNATIVE

Impacts to biology can be reduced to minimal in most cases. For potential bat maternity sites, through mitigation proposed, most notably mitigation to exclude roosting (during construction) at the appropriate time of year, substantial impacts can be avoided. Mitigation includes approved monitoring and coordination with CDFG and USFWS. If, through this coordination, it is determined that a potential substantial impact would occur, further coordination with the resources agencies would be required.
In addition, with the successful application of mitigation measures as proposed in Section 4.3.5, Mitigation, residual impacts are considered a less than substantial impact.

The project proponent is to coordinate with the CDFG, USFWS, USACOE and CRWQCB prior to permit application to discuss current project features and proposed mitigation measures.

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